

## **BACKGROUND**

A vital aspect of forensic investigation is personnel identification. Identification begins with the determination of sex. The determination of sex is often limited to sparse tissue remnants. At the site of mass disasters and crimes, the hard tissue being tougher is often the sample from which sex is to be determined. The human mandible being a resilient bone is often the tissue from which forensic investigations are to be made. This forms the basis of our study.

## **AIMS AND OBJECTIVES**

To measure, compare and evaluate the various measurements of the mandibular ramus and mental foramen as observed on digital panoramic radiographs and to assess its usefulness as an aid in sex determination among the population of Kanyakumari district.

## **MATERIALS AND METHODS**

The study is a cross sectional study comprising of a total sample size of 250 individuals grouped into 2 groups comprising of 125 males and 125 females. In this study, two parameters were measured and compared; measurement of the mandibular ramus (maximum ramus breadth, minimum ramus breadth, condylar height, projective height of ramus and coronoid height) and the measurement of the distance from mental foramen (superior and inferior border) to the lower border of the mandible. Measurements were made bilaterally, the average values calculated and the results were tabulated and statistically analysed.

## **RESULTS**

Our study found that, the overall measurements of the mandibular ramus and mental foramen were larger in males than in females. The mandibular ramus measurements were as follows: maximum ramus breadth was found to be  $35.92 \pm 2.78$  in males and  $33.78 \pm 3.56$  in females; minimum ramus breadth was found to be  $28.00 \pm 2.19$  in males and  $25.80 \pm 1.93$  in females; condylar height of  $66.83 \pm 4.90$  and  $61.03 \pm 4.67$  in males and females respectively; coronoid height in males was found to be  $56.76 \pm 4.34$  and  $52.97 \pm 3.78$  in females and projective height in males was  $65.84 \pm 5.18$  and  $59.79 \pm 4.34$  in females. The mental foramen measurements were as follows: measurements of the distance from (S-L) was found to be  $14.77 \pm 2.67$  and  $12.57 \pm 1.54$  in males and females respectively; (I-L) was found to be  $11.51 \pm 2.19$  in males and  $9.55 \pm 1.64$  in females. These were the values obtained from our sample population. All the parameters were statistically significant for the difference between males and females with the coronoid height of the ramus being the most reliable parameter for sex determination.

## **CONCLUSION**

The observations from the present study suggest that the mandibular ramus measurements and mental foramen parameters exhibit significant sexual dimorphism with the coronoid height of the ramus being the most reliable indicator of sex.

## **KEYWORDS**

Forensic dentistry, Mandible, Mandibular condyle, Panoramic Radiography, Sex Characteristics.